

MATERIAL SAFETY DATA SHEET

MILITARY AVIATION TURBINE FUEL JP-5

MSDS No.
APPC 510

Rev. Date
04/12/85



ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
515 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product

This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General		
Trade Name MILITARY AVIATION TURBINE FUEL JP-5 Other Names JP-5 JET FUEL MIL-T-5624L, AMENDMENT 1 SPECIFICATION FUEL		Telephone Numbers EMERGENCY 800/424-9300 CHEMTREC 312/210-3000 COMPANY CUSTOMER SERVICE 213/486-8258 INFO ONLY
Chemical Family PETROLEUM HYDROCARBONS Generic Name PETROLEUM DISTILLATE FUEL	DOT Hazardous Materials Proper Shipping Name FUEL, AVIATION, TURBINE ENGINE DOT Hazard Class COMBUSTIBLE LIQUID	
CAS No. SEE SECTION IX Company ID No. 1028010280	UN/NA ID No. UN 1863	
II. WARNING Summary of Hazards		
<p>MAY CAUSE IRRITATION OR MORE SERIOUS SKIN DISORDERS! AVOID PROLONGED OR REPEATED LIQUID, MIST, AND VAPOR CONTACT WITH EYES, SKIN, AND RESPIRATORY TRACT. LONG-TERM TESTS SHOW THAT SIMILAR PETROLEUM DISTILLATES HAVE PRODUCED SKIN TUMORS ON LABORATORY ANIMALS. WASH THOROUGHLY AFTER HANDLING. MAY BE HARMFUL IF INHALED! (SEE SECTIONS IV. & V.) CONTAINS PETROLEUM DISTILLATES! IF SWALLOWED, DO NOT INDUCE VOMITING SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. OBTAIN PROMPT MEDICAL ATTENTION. MODERATELY COMBUSTIBLE! OSHA/NFPA CLASS-IIIA COMBUSTIBLE LIQUID. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME. AVOID THE "SWITCH LOADING" HAZARD. (SEE SECTION XI.) KEEP OUT OF REACH OF CHILDREN!</p>		
III. Fire and Explosion		
Flash Point (Method) AP 150° F (D-93) SEE "FIRE & EXPLOSION HAZARDS"	Autoignition Temperature (Method) AP 475° F (E-659) BASED ON NFPA "JET FUEL JP-5"	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure Lower AP 0.6 Upper AP 4.6 BASED ON NFPA "JET FUEL JP-5"
Fire and Explosion Hazards	MODERATELY COMBUSTIBLE! WHEN HEATED ABOVE THE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO AN IGNITION SOURCE CAN BURN IN THE OPEN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT. FOR "SWITCH LOADING" PROCEDURES, SEE SECTION XI.	
Extinguishing Media	FOAM, DRY CHEMICAL, HALON, CARBON DIOXIDE, AND WATER FOG.	
Special Firefighting Procedures	FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.	

IV. Health Hazards

Summary of Acute Hazards LIQUID, MIST, OR VAPOR CONTACT CAN IRRITATE EYES, SKIN, AND THE RESPIRATORY AND DIGESTIVE TRACTS. ASPIRATION INTO LUNGS CAN LEAD TO CHEMICAL PNEUMONIA.

ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS	Primary Route(s)
Inhalation	VAPORS OR MISTS FROM THIS MATERIAL CAN IRRITATE THE NOSE, THROAT, AND LUNGS, AND CAN CAUSE SIGNS AND SYMPTOMS OF CENTRAL NERVOUS SYSTEM DEPRESSION, DEPENDING ON THE CONCENTRATION AND DURATION OF EXPOSURE.	<input checked="" type="checkbox"/>
Eye Contact	MILD EYE IRRITATION MAY RESULT FROM CONTACT WITH LIQUID, MIST, AND/OR VAPORS.	<input type="checkbox"/>
Skin Absorption	NO SIGNIFICANT SYSTEMIC EFFECTS ARE EXPECTED UNDER CONDITIONS OF ANTICIPATED USE.	<input type="checkbox"/>
Skin Irritation	THIS MATERIAL IS LIKELY TO BE A MODERATE SKIN IRRITANT. IRRITATION LEADING TO DERMATITIS MAY RESULT FROM PROLONGED OR REPEATED EXPOSURES. (SEE CHRONIC HAZARDS BELOW.)	<input checked="" type="checkbox"/>
Ingestion	THIS MATERIAL CAN IRRITATE THE MOUTH, THROAT, AND STOMACH, AND CAUSE NAUSEA, VOMITING, DIARRHEA AND RESTLESSNESS. ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA.	<input type="checkbox"/>
Summary of Chronic Hazards and Special Health Effects	THIS PRODUCT CONTAINS PETROLEUM DISTILLATES SIMILAR TO THOSE SHOWN TO PRODUCE SKIN TUMORS ON LABORATORY ANIMALS. AVOID PROLONGED OR REPEATED SKIN CONTACT. CAUTION IS RECOMMENDED FOR PRE-EXISTING CENTRAL NERVOUS SYSTEM DISEASES. PERSONNEL WITH PRE-EXISTING CENTRAL NERVOUS SYSTEM DISEASE, SKIN DISORDERS, OR CHRONIC RESPIRATORY DISEASES SHOULD AVOID EXPOSURE TO THIS PRODUCT.	

V. Protective Equipment and Other Control Measures

Respiratory	THIS MATERIAL IS NOT EXPECTED TO PRESENT A RESPIRATORY HAZARD BECAUSE OF ITS LOW VAPOR PRESSURE. BUT, IF EXCESSIVE MIST OR VAPORS RESULT FROM CONDITIONS OF USE, WEAR PROPER NIOSH/MSHA-APPROVED RESPIRATORY EQUIPMENT.
Eye	EYE PROTECTION SHOULD BE WORN WHENEVER THERE IS A LIKELIHOOD OF SPLASHING OR SPRAYING LIQUID. CONTACT LENSES SHOULD NOT BE WORN. SUITABLE EYE WASH WATER SHOULD BE AVAILABLE.
Skin	AVOID PROLONGED AND/OR REPEATED SKIN CONTACT. IF CONDITIONS OR FREQUENCY OF USE MAKE CONTACT SIGNIFICANT, CLEAN AND IMPERVIOUS PROTECTIVE CLOTHING SUCH AS GLOVES, APRON, BOOTS, AND FACIAL PROTECTION SHOULD BE WORN.
Engineering Controls	USE ADEQUATE VENTILATION TO KEEP VAPOR CONCENTRATIONS OF THIS MATERIAL BELOW APPLICABLE EXPOSURE LIMITS. (SEE SECTIONS VI. AND XI.)
Other Hygienic and Work Practices	USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USE OF TOILET FACILITIES. IMMEDIATELY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. DISCARD CONTAMINATED LEATHER GOODS. RESPIRATOR USE SHOULD COMPLY WITH OSHA STANDARDS OR EQUIVALENT. SEE SECTION XI. FOR ADDITIONAL INFORMATION.

VI. Occupational Exposure Limits

Substance	Source	Date	Type	Value/Units	Time
KEROSENE (DHEW PUBLICATION 77-192)	NIOSH	1977	PEL	100 MG/M3	10 HRS
			STEL	1800 MG/M3	15 MIN
STODDARD SOLVENT (SEE SECTION XI.)	ACGIH	1985	TWA	100 PPM	8 HRS
			STEL	200 PPM	15 MIN



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VII. Emergency and First Aid

Inhalation	IMMEDIATELY MOVE PERSONNEL TO AREA OF FRESH AIR. FOR RESPIRATORY DISTRESS, GIVE AIR, OXYGEN, OR ADMINISTER CPR (CARDIOPULMONARY RESUSCITATION), IF NECESSARY. OBTAIN MEDICAL ATTENTION IF BREATHING DIFFICULTIES CONTINUE.
Eye Contact	FLUSH WITH CLEAN LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, OBTAIN MEDICAL ATTENTION.
Skin Contact	PROMPTLY REMOVE CONTAMINATED CLOTHING AND THOROUGHLY CLEAN BEFORE REUSE, BUT DISCARD CONTAMINATED LEATHER GOODS. THOROUGHLY WASH AFFECTED AREA WITH SOAP AND WATER.
Ingestion	DO NOT INDUCE VOMITING, SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. IF ASPIRATION OCCURS, PROMPTLY OBTAIN MEDICAL ATTENTION.
Emergency Medical Treatment Procedures	SEE ABOVE PROCEDURES. PERSONNEL WITH PRE-EXISTING SKIN DISORDERS OR CHRONIC RESPIRATORY DISEASES SHOULD AVOID EXPOSURE TO THIS PRODUCT.

VIII. Spill and Disposal

Precautions if Material is Spilled or Released	CONTAIN SPILL. REMOVE ALL IGNITION SOURCES AND SAFELY STOP FLOW OF SPILL. SPILL MAY CREATE SLIPPING HAZARDS. PREVENT FROM ENTERING ALL WATER BODIES. IF POSSIBLE. EVACUATE ALL NON-ESSENTIAL PERSONNEL. IN URBAN AREAS, CLEANUP AS SOON AS POSSIBLE; IN NATURAL ENVIRONMENTS, CLEANUP ON ADVICE FROM ECOLOGISTS. THIS MATERIAL WILL FLOAT ON WATER. ABSORBANT MATERIAL AND PADS CAN BE USED. COMPLY WITH ALL APPLICABLE LAWS. SPILLS MAY NEED TO BE REPORTED TO THE NATIONAL RESPONSE CENTER (800/424-8802). THE SPILLED MATERIAL AND ANY WATER OR SOIL WHICH IT HAS CONTACTED MAY BE HAZARDOUS TO ANIMAL/AQUATIC LIFE.
Waste Disposal Methods	MAXIMIZE PRODUCT RECOVERY FOR REUSE OR RECYCLING. UNUSED LIQUID PRODUCT IS LIKELY AN EPA "IGNITABLE HAZARDOUS WASTE" (D001). USE APPROVED TREATMENT, TRANSPORTERS, AND DISPOSAL SITES IN COMPLIANCE WITH ALL APPLICABLE LAWS. IF SPILL IS INTRODUCED INTO A WASTEWATER SYSTEM, THE CHEMICAL AND BIOLOGICAL OXYGEN DEMAND WILL LIKELY INCREASE. SPILL MATERIAL IS BIODEGRADABLE IF GRADUALLY EXPOSED TO MICROORGANISMS. POTENTIAL DISPOSAL METHODS INCLUDE INCINERATION AND LAND DISPOSAL, IF PERMITTED.

IX. Components (This may not be a complete list of components)

Component Name	CAS No.	Carcinogen##	Composition amount (Vol.) (See Qualification on Page 4)
HYDROCARBONS WITH A BOILING POINT RANGE OF 325° F. TO 560° F.		N/AP AP	100 PERCENT

##Listed By: 1 = NTP, 2 = IARC, 3 = OSHA, 4 = Other

Compositions given are typical values, not specifications.

X. Physical and Chemical Data

Boiling Point 350° TO 554° F	Viscosity Units, Temp. (Method) AP 2 CST AT 100° F (D-445)	Dry Point N/DA
Freezing Point LT -51° F	Vapor Pressure (REID-PSIA AT 100° F) AP 0.1	Volatile Characteristics SLIGHT
Specific Gravity (H₂O = 1 at 39.2° F) AP 0.79 TO 0.84	Vapor Sp. Gr. (Air = 1.0 at 60° - 90° F) AP 6	Solubility in Water NEGLIGIBLE
Hazardous Polymerization NOT EXPECTED TO OCCUR	Other Chemical Reactivity N/P	pH N/AP
Stability STABLE		
Other Physical and Chemical Properties SULFUR CONTENT = LT 0.4 WT.%; AROMATICS CONTENT = LT 25 VOL.%; OLEFINS CONTENT = LT 5 VOL.%. NEARLY COLORLESS TO LIGHT-AMBER COLORED LIQUID; KEROSENE ODOR.		
Appearance and Odor		
Conditions to Avoid HEAT AND IGNITION SOURCES.		
Materials to Avoid STRONG ACIDS, ALKALIES, AND OXIDIZERS SUCH AS LIQUID CHLORINE AND OXYGEN.		
Hazardous Decomposition Products BURNING OR EXCESSIVE HEATING MAY PRODUCE CARBON MONOXIDE AND OTHER HARMFUL GASES/VAPORS INCLUDING OXIDES AND/OR OTHER COMPOUNDS OF SULFUR.		

XI. Additional Precautions

Handling, Storage and Decontamination Procedures	<p>SPECIAL SLOW LOAD PROCEDURES FOR "SWITCH LOADING" MUST BE FOLLOWED TO AVOID THE STATIC IGNITION HAZARD THAT CAN EXIST WHEN THIS MATERIAL IS LOADED INTO TANKS PREVIOUSLY CONTAINING GASOLINE OR OTHER LOW FLASH POINT PRODUCTS. (SEE A.P.I. PUBLICATION 2003.) KEEP CONTAINERS CLOSED AND AWAY FROM HEAT AND IGNITION SOURCES! ALL ELECTRICAL EQUIPMENT IN AREAS WHERE PRODUCT IS STORED/HANDLED SHOULD BE INSTALLED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE, N.E.P.A. DO NOT USE THIS PRODUCT AS A CLEANING AGENT. EMPTY CONTAINERS RETAIN SOME LIQUID AND VAPOR RESIDUES, AND HAZARD PRECAUTIONS MUST BE OBSERVED WHEN HANDLING EMPTY CONTAINERS.</p> <p>WARNING: USE OF ANY HYDROCARBON FUEL IN SPACES WITHOUT ADEQUATE VENTILATION MAY RESULT IN GENERATION OF HAZARDOUS LEVELS OF COMBUSTION PRODUCTS AND INADEQUATE OXYGEN LEVELS FOR BREATHING.</p>											
General Comments	<p>SOME OSHA PERMISSIBLE EXPOSURE LIMITS ARE NOT SHOWN IN SECTION VI. BECAUSE THEY ARE LESS RESTRICTIVE THAN THE ACGIH EXPOSURE LIMITS ALREADY LISTED.</p> <p>SINCE SPECIFIC EXPOSURE STANDARDS/CONTROL LIMITS HAVE NOT BEEN ESTABLISHED FOR THIS MATERIAL, THE EXPOSURE LIMITS LISTED IN SECTION VI. ARE SUGGESTED AS MINIMUM CONTROL GUIDELINES.</p> <p>MATERIALS SIMILAR TO SOME COMPONENTS IN THIS PRODUCT WERE FOUND TO BE MUTAGENIC IN "IN VITRO" AND "IN VIVO" TESTS. THE EXACT RELATIONSHIP BETWEEN THESE RESULTS AND POSSIBLE HUMAN EFFECTS IS NOT KNOWN.</p> <p>"PETROLEUM DISTILLATE"--16 CFR 1500.14(B)(3). USE SPECIAL FEDERAL LABELING IF INTENDED, OR PACKAGED, FOR USE IN THE HOUSEHOLD OR BY CHILDREN.</p> <p>SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE MIXTURE ITSELF.</p>											
<p>- - - Note - - - Qualifications:</p> <table><tr><td>EQ = Equal</td><td>AP = Approximately</td><td>N/P = No Applicable Information Found</td></tr><tr><td>LT = Less Than</td><td>UK = Unknown</td><td>N/AP = Not Applicable</td></tr><tr><td>GT = Greater Than</td><td>TR = Trace</td><td>N/DA = No Data Available</td></tr></table>				EQ = Equal	AP = Approximately	N/P = No Applicable Information Found	LT = Less Than	UK = Unknown	N/AP = Not Applicable	GT = Greater Than	TR = Trace	N/DA = No Data Available
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Disclaimer of Liability

The information in this MSDS was obtained from sources which we believe are reliable. **HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS.**

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. **FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.**

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

DIESELS
#2 DIESELS

HEATING OILS
NAVAL DISTILLATES

JP-5 JET FUELS
CUTTER STOCKS

WARNING MODERATELY COMBUSTIBLE
MAY BE HARMFUL IF INHALED
MAY CAUSE IRRITATION OR MORE SERIOUS SKIN DISORDERS*
CONTAINS PETROLEUM DISTILLATES. ASPIRATION INTO THE LUNGS
WILL CAUSE CHEMICAL PNEUMONIA.

- ° Keep away from heat, sparks and open flame
- ° Avoid breathing vapors or mists
- ° Avoid prolonged and/or repeated skin contact
- ° Wash thoroughly after handling
- ° Avoid eye contact with mist, liquid and/or vapor
- ° When loading into tanks previously containing gasoline or other low flash point products, slow loading procedures must be followed to avoid the static ignition hazard.

FIRST AID

EYE CONTACT: Flush eyes with clean water for 15 minutes.

SKIN CONTACT: Wash affected area thoroughly with soap and water.

EXCESSIVE INHALATION: Move immediately to fresh air. Administer CPR and obtain medical attention if necessary.

SWALLOWING: If swallowed, obtain prompt medical attention. Do not induce vomiting unless directed by physician.

* Long term studies have shown that petroleum distillates similar to those used in this product have produced skin tumors in laboratory animals.

REFER TO MATERIAL SAFETY DATA SHEET FOR FURTHER INFORMATION

Arco Petroleum Products Company
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Los Angeles, California 90071